



# UNITED STATES PATENT AND TRADEMARK OFFICE

A  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,041	07/11/2003	Lee A. Burton	SRC027	4115
25235	7590	12/14/2005	EXAMINER	
HOGAN & HARTSON LLP ONE TABOR CENTER, SUITE 1500 1200 SEVENTEENTH ST DENVER, CO 80202				SORRELL, ERON J
ART UNIT		PAPER NUMBER		
		2182		

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/618,041	BURTON, LEE A.
	<b>Examiner</b>	<b>Art Unit</b>
	Eron J. Sorrell	2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-85 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-85 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 11 July 2003 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/12/03, 11/8/04</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

**DETAILED ACTION*****Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-41 and 48-62 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-37 of copending Application No. 09/932,330. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application recite limitations using the

Art Unit: 2182

term "dense logic device," while the claims of application 09/932,330 use the term "processor" to describe the same functional unit. The independent claims of the instant application also recite the limitation of a direct execution logic element coupled to an adapter port that is associated with a memory module slot while the claims of 09/932,330 recite a processor element associated with a memory module slot to describe the same structure. Finally the independent claims of the instant application recite the limitation of memory resources being included in the adaptor port. While not explicitly set forth in the claims of 09/932,330, one of ordinary skill in the art would realize the processor element associated with the adaptor port claimed would use registers to hold data for manipulation.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2182

2. Claims 5, 6, 29, 30, 62, and 69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claims 5, 6, 29, 30, 62, and 69 contain the trademark/trade name "RIMM". Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a memory module and, accordingly, the identification/description is indefinite.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 9, 19-21, 25-28, 33, 49-51, 55-61, 63-68, 70-77, and 83-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (U.S. Patent No. 6,052,134) in view of O'Sullivan (U.S. Patent No. 4,972,457).

6. Referring to claim 1, 2, and 26 Foster teaches a computer system (see figure 1) comprising:

at least one dense logic device (see item 12 of figure 1);  
a controller, comprising an interleaved memory controller (see item 14 in figure 2 and lines 1-8 of column 2 and lines 11-37 of column 7) for coupling the at least one dense logic device to a control block (see item 28 in figure 1) and a memory bus (see bus coupling item 14 to item 18 in figure 1);  
at least one memory module slot (see lines 30-55 of column 5).

Art Unit: 2182

Foster fails to teach the system further an adaptor port associated with the at least one memory module slot the adapter port including associated memory resources selectively accessible by the dense logic device and the at least one direct execution logic element coupled to the adapter port.

O'Sullivan teaches a computer system comprising the above limitations (see item 70 in figure 4 and paragraphs bridging columns 5 and 6 and lines 7-41 of column 7), and suggests the adaptor port (hybrid communications control unit), can be located in any available memory expansion slot within the computer.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Foster with the above teachings of O'Sullivan. One of ordinary skill in the art would have been motivated to make such modification in order to add an adapter using an existing available slot without making any hardware changes in the computer or purchasing additional equipment as suggested by O'Sullivan.

The combination of Foster and O'Sullivan fails to teach an adapter port associated with at least two of the plurality of memory slots.

Art Unit: 2182

It would have been obvious to one of ordinary skill in the art to modify at the time of the applicant's invention to modify the combination of Foster and O'Sullivan such that the it comprises an adapter port associated with at least two of the memory slots in order to connect and interface with more external communication devices.

7. Referring to claims 3,27,68, Foster teaches the plurality of memory module slots comprise DIMM memory module slots (see lines of column; Note DIMMs have a 64-bit width and Foster discloses the memory banks disclosed have a 64-bit width).

8. Referring to claims 4,28,61 O'Sullivan teaches the adapter port comprises a DIMM physical format for retention within one of the DIMM memory module slots.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Foster with the above teachings of O'Sullivan. One of ordinary skill in the art would have been motivated to make such modification in order to add an adapter using an existing available slot without making any hardware changes in the computer or purchasing additional equipment as suggested by O'Sullivan.

9. Referring to claims 9 and 33, Foster teaches the control block comprises a peripheral bus control block (see item labeled 20 in figure 1).

10. Referring to claims 12 and 36, Foster teaches the control block comprises a graphics control block (see item labeled 20 in figure 1).

11. Referring to claims 19,20,49, and 50, O'Sullivan teaches the direct execution element is operative data received from said controller on said memory bus and is operative alter data received from an external source prior to placing altered data said memory bus (see lines 3-12 of column 4).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Foster with the above teachings of O'Sullivan in order for the data to be in the proper format/protocol for sending and receiving data.

12. Referring to claims 21,51, and 70, Foster teaches the direct execution element comprises a control block coupled to the adapter port (see item labeled 70 in figure 4).

Art Unit: 2182

13. Referring to claim 25 and 55 Foster teaches the direct execution element comprises a read only memory associated with the control block for providing configuration information thereto (see paragraph bridging columns 5 and 6).

14. Referring to claim 56, Foster teaches a computer system including, the computer system comprising at least one dense logic device coupled to said memory bus (see item 12 in figure 1 and bus coupled memory 18).

Foster fails to teach an adapter port for electrical coupling between a memory bus of said computer system and a network interface said adapter port comprising: a memory resource associated with said adapter port; and a control block for selectively enabling access by said at least one dense logic device to said memory resource.

O'Sullivan teaches a computer system comprising the above limitations (see item 70 in figure 4 and paragraphs bridging columns 5 and 6 and lines 7-41 of column 7).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Foster with the above teachings of O'Sullivan. One of ordinary skill in the art would have been motivated to make such

Art Unit: 2182

modification in order to add an adapter using an existing available slot without making any hardware changes in the computer or purchasing additional equipment as suggested by O'Sullivan.

15. Referring to claims 57 and 64, O'Sullivan teaches the control block is further operational to selectively preclude access by said at least one dense logic device to said memory resource (see paragraph bridging columns 5 and 6).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Foster with the teachings of O'Sullivan for the same reasons as outlined in the rejection of claim 56, supra.

16. Referring to claim 58, 65, and 83, O'Sullivan teaches the at least one direct execution logic element coupled to said network interface (see item 70 in figure 4).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Foster with the teachings of O'Sullivan for the same reasons as outlined in the rejection of claim 56, supra.

Art Unit: 2182

17. Referring to claim 59 and 66, O'Sullivan teaches the control block is further operational to alternatively enable access to said memory resource by said at least one dense logic device and said at least one direct execution logic element (see paragraph bridging columns 5 and 6).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Foster with the teachings of O'Sullivan for the same reasons as outlined in the rejection of claim 56, *supra*.

18. Referring to claims 60 and 67, Foster teaches, the memory bus comprises first and second memory module slots (see lines 30-55 of column 5) and O'Sullivan teaches the adaptor port is configured to physical retention in the memory module slot (see lines 7-41 of column 7).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Foster with the teachings of O'Sullivan for the same reasons as outlined in the rejection of claim 56, *supra*.

19. Referring to claim 63, O'Sullivan teaches the claimed adapter port.

Art Unit: 2182

It would have been obvious to one of ordinary skill in the art the time of the applicant's invention to add an additional adapter port that performs the same function to allow for greater external device connections.

20. Referring to claim 71, Foster teaches the computer system comprises a memory and I/O controller interposed between said at least one dense logic device and said memory bus (see item 14 in figure 1).

21. Referring to claim 72, Foster the memory and I/O controller comprises an interleaved memory controller (see lines 1-8 of column 2).

22. Referring to claims 73-75, O'Sullivan teaches the adapter port comprises a number of switches interposed between said memory bus and said memory resource controllable by said control block (see item 86 in figure 4), the switches comprise field effect transistors, the computer switches have condition thereof coupling said dense device to said memory resource and second condition thereof for coupling said network interface said memory resource (see line 45 of column 5 to line 5 of column 6).

Art Unit: 2182

23. Referring to claims 76 and 77, Foster as modified by O'Sullivan teaches the memory bus provides address/control and data inputs to said control block to at least partially control its functionality (see lines 7-18 of column 7).

24. Referring to claims 84 and 85, O'Sullivan teaches the memory resource comprises DRAM (see item 70 in figure 4).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Foster with the teachings of O'Sullivan for the same reasons as outlined in the rejection of claim 56, *supra*.

25. Claims 5, 6, 29, 30, 62, and 69, are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster in view of O'Sullivan as applied to claims 1 and 34 above, and further in view of Tetricks (U.S. Patent No. 6,598,199).

26. Referring to claims 5, 6, 29, 30, 62, and 69 the combination of Foster and O'Sullivan fails to teach the memory module slots comprise RIMM memory module slots and the adapter port comprises a RIMM physical format for retention within one of said RIMM memory module slots.

Art Unit: 2182

Tetrick teaches RIMMs are substantially similar to DIMMs, but use RDRAM chips which have faster access times than other DRAM or SDRAM chips (see lines 40-54 of column 2). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Foster and O'Sullivan with the above teachings of Tetrick in order to use a faster memory as suggested by Tetrick.

27. Claims 7,8,10,11,13,14,31,32,34,35,37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster in view of O'Sullivan as applied to claims 1 and 34 above, and further in view of Mays, Jr. (USPN: 6,452,700).

28. Referring to claims 7,8,10,11,13,14,31,32,34,35,37, and 38 the combination of Foster and O'Sullivan fails to teach the graphics control block provides control information to the direct execution logic element of the adapter port (note the graphics control block is also a peripheral bus control block).

Mays, Jr. teaches an I/O control block which provides control information to the direct execution logic element of the adapter port (see lines 20-42 of column 4).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the

Art Unit: 2182

combination of Foster and O'Sullivan with the above teachings of Mays, Jr. One of ordinary skill in the art would have been motivated to make such modification in order to facilitate in data transfers as suggested by Mays, Jr. (see lines 20-42 of column 4).

29. Claims 15-17 and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster in view of O'Sullivan as applied to claim 1 above, and further in view of Whittaker et al. (USPN: 5,889,959 hereinafter "Whittaker").

30. Referring to claims 15-17 and 39-41 the combination of Foster and O'Sullivan fails to teach the control block comprises systems maintenance control block, wherein the systems maintenance control block provides control information to the direct execution logic element of the adapter port.

Whittaker teaches a control block comprising a systems maintenance control block, wherein the systems maintenance control block provides control information said adapter port (see lines 42-49 of column 4).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Foster and O'Sullivan with the above teachings of

Art Unit: 2182

Whittaker. One of ordinary skill in the art would have been motivated to make such modification in order to provide diagnostic functions to all of the modules in the system as suggested by Whittaker (see lines 30-43 of column 1).

31. Claims 18,22-24,48, and 52-54 rejected under 35 U.S.C. 103(a) as being unpatentable over Foster in view of O'Sullivan as applied to claims 1 and 34 above, and further in view of Chiles et al. (USPN: 6,581,157).

32. Referring to claims 18 and 48 the combination of Foster and O'Sullivan fails to teach the direct execution logic element comprises a reconfigurable processor element.

Chiles teaches an adapter port with a direct execution logic element comprising a reconfigurable processor element (see item labeled 256 in figure 3).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Foster and O'Sullivan with the teachings of Chiles. One of ordinary skill would have been motivated to make such modification in order to upgrade the adapter port without purchasing a new one.

Art Unit: 2182

33. Referring to claim 22,23,52, and 53 the combination of Foster and O'Sullivan fails to teach the direct execution logic element further comprises at least one field programmable gate array configurable to perform an identified algorithm on and operand provided thereto by said adapter port and a read only memory associated with said control block for providing configuration information thereto, and wherein the system further comprising a dual-ported memory block coupling a control block coupled to said adapter port to said at least one field programmable gate array.

Chiles teaches the above limitation (see item labeled 256 in figure 3 and paragraph bridging columns 8 and 9). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Foster and O'Sullivan with the teachings of Chiles. One of ordinary skill would have been motivated to make such modification in order to upgrade the adapter port without purchasing a new one.

34. Referring to claims 24 and 54 the combination of Foster and O'Sullivan fails to teach the processor element comprises a chain port for coupling the processor element to another processor element.

Art Unit: 2182

Chiles teaches the processor element comprises a chain port for coupling the processor element to another processor element (see paragraph bridging columns 8 and 9).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Foster and O'Sullivan with the teachings of Chiles. One of ordinary skill in the art would have been motivated to make such modification in order to connect the host computer to a network.

35. Claims 42-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster in view of O'Sullivan as applied to claim 1 above, and further in view PCI Technology Overview (hereinafter "PCITO")

36. Referring to claims 42-47 the combination of Foster and O'Sullivan fails to teach the control block comprises a PCI-X or PCI-Express control block, wherein the PCI-X or PCI-Express control block provides control information to the direct execution logic element of the adapter port.

PCITO teaches a control block comprising a PCI-X or PCI-Express control block wherein the PCI-X or PCI-Express control

Art Unit: 2182

block provides control information said adapter port (see pages 12,13, and 16).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Foster and O'Sullivan with the above teachings of PCITO. One of ordinary skill in the art would have been motivated to make such modification in order to useful in high speed networking environments or high-speed chip interconnects as suggested by PCITO (see pages 8 and 16).

37. Claims 78-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster in view of O'Sullivan as applied to claim 1 above, and further in view FreeBSD Developers' Handbook Chapter 9.

38. Referring to claims 78-82, the combination of Foster and O'Sullivan fails to teach the control block further comprises a DMA controller providing fully parameterized direct memory access operations memory resource, wherein the DMA controller enables scatter/gather, irregular data access pattern functions, and data packing functions to be implemented.

Art Unit: 2182

FreeBSD Developers' Handbook Chapter 9, teaches such a DMA controller that can perform the above functions (see section 9.1).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Foster and O'Sullivan with the above teachings from FreeBSD Developers' Handbook Chapter 9, in order to relieve the direct execution logic element of the burden of transferring data as suggested by FreeBSD Developers' Handbook Chapter 9 (see section 9.1).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eron J. Sorrell whose telephone number is 571 272-4160. The examiner can normally be reached on Monday-Friday 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2182

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EJS  
December 12, 2005

KIM HUYNH  
PRIMARY EXAMINER

12/12/05